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liable to decay, Mr. Dudley illustrates the penetration of fungi by a photograph of a plank showing the mycelium of *Polyporus radula*. The more common destructive fungi are also enumerated, and the article concludes with a comparison of the conditions in which decay is most and least likely to occur.

Yucca angustifolia. A chemical study. Helen C. DeS. Abbott. (Rep. from Trans. Am. Phil. Soc., Phil., 1886., pp. 254-284.)

Botanical Notes.

Specimens of Dentaria and Cardamine wanted.—Fruiting specimens of any species of *Dentaria* and *Cardamine* are wanted for examination by Sereno Watson, Cambridge, Mass. They will be returned if desired and postage refunded.

Lectures on the Physiology of Plants.—Sydney Howard Vines, (Cam. Univ. Press, England, 1886, octavo, pp. 710, pr. \$5.00, In style, clearness and method this will prove a companion to Foster's Physiology of Animals, and deserves a place by its side. The chapters are in the form of lectures, twenty-three in number, sparsely illustrated, but containing clear deductions from the researches of the last ten years. Much space is given to Metabolism and Irritability, and the changes due to chemical and physical forces, with their effects on the assimilation and growth of plants, are discussed in these chapters. The last two chapters on Reproduction co-ordinate and bring out the analogies of this function throughout the Plant Kingdom, and will prove most interesting reading to those whose knowledge of German and access to periodicals is limited, and whose experience with the varied forms and nomenclature of Cryptogamous reproduction has been a source of confusion and discouragement. Copious references to bibliography follow each chapter.

Solanum tuberosum.—Nouvelles Recherches Sur le Type Sauvage de la Pomme de Terre. Alph. DeCandolle. (Archiv. Sc. Phys. et Nat., xv., p. 425.) Since the publication in 1883 of the "Origin of Cultivated Plants," there have appeared several articles on the potato, which have led M. DeCandolle to give more critical attention to those "organs and characters which it is not to the interest of man to see changed." In the potato the calyx and the leaves have remained practically the same since its introduction three centuries ago.

After comparing carefully the forms with obtuse calyx-lobes from Chili and Peru, collected in the Andes by Bridges, he makes a new species, *S. Bridgesii*, and also decides that those from the Argentine Republic are not *S. tuberosum*.

He says that our native species from New Mexico and Arizona, which Dr. Gray has called *S. Fendleri*, and *S. tuberosum boreale*, resemble more closely *S. verrucosum*, Schlecht., and holds that *S. tuberosum* and *S. Maglia* are specifically identical, that the differences which separate the tuberoso species are very slight, and that they diminish with the increase of hybridization. The paper concludes with specific descriptions of *S. Bridgesii*, n. s.; *S. tuberosum*, L., var. *Chilocense*, var. *cultum*, var. *Sabini*, var. *Maglia*, and *S. Mandoni*.

Schimper's Microspores of Sphagna.—In Hedwigia, Vol. xxv., pp. 89-92, C. Warnstorf calls attention to Schimper's statement in 1858 (*Entwicklungsgeschichte der Torfmoose*, p. 31) that two kinds of spores exist in the *Sphagna*, one kind being large, tetrahedral (macrospores), the other smaller and spherical-polyhedral (microspores) and that they may be found in separate capsules—in which case the microspores occur in smaller capsules than the macrospores—or both forms together in the same capsule. Herr Warnstorf has succeeded in finding both kinds in separate capsules of *S. acutiforme*, vars. *robustum* and *tenellum*, and *S. acutifolium*, var. *luridum*, and both together in the capsules of *S. Girgensohnii*. The microspores are about one-half the diameter of the macrospores, and hence about one-quarter their volume. Schimper remarks that they result from the continued division of mother-cells into sixteen segments, the macrospores being produced by their division into four. Their function is unknown. This corroboration of Prof. Schimper's discovery is of great interest and importance, indicating the higher position of the Bog Mosses in the Vegetable kingdom, as compared with other Bryophytes, and agreeing in this respect with the greater complexity of their tissues, suggesting indeed, certain relationship to the heterosporous Pteridophyta. Herr Warnstorf's researches open a field of inquiry which should be followed up in this country, and we commend it to the attention of American Bryologists.